

What is Claimed is:

Add AZ

1. A self-occluding catheter comprising:

a body portion having a proximal end, a distal end, at least one internal fluid conduit extending between said proximal end and said distal end and an internal transverse bore in fluid communication with said internal fluid conduit;

a spool slidably supported within said internal transverse bore of said body portion, said spool slidable between an open and a closed position; and

a biasing device adjacent said spool for resiliently urging said spool to said closed position wherein said spool substantially blocks said internal fluid conduit of said body thereby preventing fluid flow between said distal end and said proximal end of said body;

wherein a positive or a negative fluid pressure applied at said proximal end of said body portion overcomes said resilient urging provided by said biasing device on said spool to move said spool to said open position thereby permitting fluid flow between said distal end and said proximal end of said body portion, termination of said fluid pressure allowing said biasing device to return said spool to said closed position.

2. The self-occluding catheter connector as defined in claim 1, wherein said spool is magnetically charged and said biasing device comprises at least one magnet fixed adjacent said spool, said magnet generating a magnetic force for resiliently urging said spool to said closed position.

3. The self-occluding catheter connector as defined in claim 2, wherein said spool includes an internal magnet for providing said magnetic charge.

4. The self-occluding catheter connector as defined in claim 1, wherein said biasing device comprises at least one spring positioned adjacent said spool for spring biasing said spool to said closed position.

09764659-011701

5 5. The self-occluding catheter connector as defined in claim 1, wherein said spool comprises a cylindrical member having two opposite end portions and a central portion, said end portions having a diameter slightly less than the diameter of said transverse bore for providing a close sliding relationship between said end portions and said transverse bore, one of said end portions blocking said internal fluid conduit when said spool is in said closed position, and said central portion having a smaller diameter than said end portions for forming an annular fluid chamber between said end portions.

6. The self-occluding catheter connector as defined in claim 5, wherein at least one end portion includes a sealing ring for preventing leakage from said internal fluid conduit.

5 7. The self-occluding catheter connector as defined in claim 1, wherein said elongated tubular portion includes an inlet lumen in fluid communication with an inlet fluid conduit of said body portion and an outlet lumen in fluid communication with an outlet fluid conduit of said body portion, said inlet and outlet fluid conduits of said body portion being in fluid communication with said transverse bore and said spool simultaneously blocking said inlet fluid conduit and said outlet fluid conduit when said spool is in said closed position.

5 8. The self-occluding catheter connector as defined in claim 7, wherein said spool comprises a cylindrical member having two opposite end portions and a central portion, said end portions having a diameter slightly less than the diameter of said transverse bore for providing a close sliding relationship between said end portions and said transverse bore, said end portions simultaneously blocking said inlet and outlet fluid conduits when said spool is in said closed position, and said central portion having a smaller diameter than said end portions for permitting flow around said spool when said spool is in said open position.

9. The self-occluding catheter connector as defined in claim 8, wherein at least one of said end portions includes a sealing ring for preventing fluid flow between said inlet and said outlet fluid conduits.

10. The self-occluding catheter connector as defined in claim 7, wherein said spool comprises an elongate member having two opposite end portions, a shoulder portion positioned between said end portions and a neck portion positioned between each of said end portions and said shoulder portion, said shoulder portion having a diameter slightly less than the diameter of said transverse bore for providing a close sliding relationship between said shoulder portion and said transverse bore, said end portions simultaneously blocking said inlet and outlet fluid conduits when said spool is in said closed position, and at least one of said neck portions permitting flow around said spool when said spool is in said open position.

11. The self-occluding catheter connector as defined in claim 10, wherein said shoulder portion includes a sealing ring for preventing fluid flow between said inlet and said outlet fluid conduits.

12. The self-occluding catheter of claim 1 further including:
an elongated tubular extension attached to said distal end of said body portion for insertion into a body cavity, said tubular extension having at least one lumen in fluid communication with said internal fluid conduit of said body portion;

13. The self-occluding catheter of claim 12 wherein said tubular extension is releasably connected to said distal end of said body portion.

14. The self-occluding catheter of claim 12 wherein said tubular extension is integrally formed with said distal end of said body portion.

15. A self-occluding catheter connector for connecting a catheter to extracorporeal equipment, said catheter connector comprising:

5 a body having a catheter connection end, an extracorporeal equipment connection end, at least one internal fluid conduit extending between said catheter connection end and said extracorporeal equipment connection end and an internal transverse bore in fluid communication with said internal fluid conduit;

a spool slidably supported within said internal transverse bore between an open and a closed position; and

10 a biasing device adjacent said spool for resiliently urging said spool to said closed position wherein said spool substantially blocks said internal fluid conduit thereby preventing fluid flow between said catheter connection end and said extracorporeal equipment connection end,

15 wherein a positive or a negative fluid pressure applied at said extracorporeal equipment connection end overcomes the resilient urging provided by said biasing device on said spool to slide said spool to said open position thereby permitting fluid flow between said catheter connection end and said extracorporeal equipment connection end, termination of said fluid pressure allowing said biasing device to return said spool to said closed position.

16. The self-occluding catheter connector as defined in claim 15, wherein said catheter connection end includes a cooperating coupling device for coupling said catheter connector to a selected catheter.

17. The self-occluding catheter connector as defined in claim 15, wherein said spool is magnetically charged and said biasing device comprises at least one magnet fixed adjacent said spool, said magnet generating a magnetic force for resiliently biasing said spool to said closed position.

09764659 011701

18. The self-occluding catheter connector as defined in claim 17, wherein said spool includes an internal magnet for providing said magnetic charge.

19. The self-occluding catheter connector as defined in claim 15, wherein said biasing device comprises at least one spring positioned adjacent said spool for resiliently urging said spool to said closed position.

20. The self-occluding catheter connector as defined in claim 15, wherein said spool comprises a cylindrical member having two opposite end portions and a central portion, said end portions having a diameter slightly less than the diameter of said transverse bore for providing a close sliding relationship between said end portions and said transverse bore, one of said end portions blocking said internal fluid conduit when said spool is in said closed position, and said central portion having a smaller diameter than said end portions for forming an annular fluid chamber between said end portions.

21. The self-occluding catheter connector as defined in claim 20, wherein at least one of said end portions includes a sealing ring on its outer diameter for preventing leakage from said internal fluid conduit.

22. The self-occluding catheter connector as defined in claim 15, wherein said body includes an inlet fluid conduit and an outlet fluid conduit both in fluid communication with said transverse bore, said spool simultaneously blocking said inlet fluid conduit and said outlet fluid conduit when said spool is in said closed position.

09764659.011701

23. The self-occluding catheter connector as defined in claim 22, wherein said spool comprises a cylindrical member having two opposite end portions and a central portion, said end portions having a diameter slightly less than the diameter of said transverse bore for providing a close sliding relationship between said end portions and said transverse bore, said end portions simultaneously blocking said inlet and outlet fluid conduits when said spool is in said closed position, and said central portion having a smaller diameter than said end portions for permitting flow around said spool when said spool is in said open position.

24. The self-occluding catheter connector as defined in claim 23, wherein at least one of said end portions includes a sealing ring for preventing fluid flow between said inlet and said outlet fluid conduits.

25. The self-occluding catheter connector as defined in claim 22, wherein said spool comprises an elongate member having two opposite end portions, a shoulder portion positioned between said end portions and a neck portion positioned between each of said end portions and said shoulder portion, said shoulder portion having a diameter slightly less than the diameter of said transverse bore for providing a close sliding relationship between said shoulder portion and said transverse bore, said end portions simultaneously blocking said inlet and outlet fluid conduits when said spool is in said closed position, and at least one of said neck portions permitting flow around said spool when said spool is in said open position.

26. The self-occluding catheter connector as defined in claim 25, wherein said shoulder portion includes a sealing ring on its outer diameter for preventing fluid flow between said inlet and said outlet fluid conduits.